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I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. PS 0957 for a patent by OZB2B PTY LTD as filed on 07 March 2002.

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Eighteenth day of March 2003

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PROVISIONAL SPECIFICATION

Invention title: SYSTEM AND METHOD FOR CONDUCTING ONLINE AUCTIONS

The invention is described in the following statement:

SYSTEM AND METHOD FOR CONDUCTING ONLINE AUCTIONS

Field of the invention

The present invention relates generally to a system and method for conducting online auctions. It has particular application in conducting business on-line over a network of computers such as the Internet, for establishing materials supply contracts. In particular, the invention relates to control of a reserve price in an online bidding event.

Background

In applicant's copending application PCT/AU01/01110 (filed 4 September 2001), a 'factored bidding' online materials supply contract system is described. The system, involving a computer network including at least one buyer computer, an administrator computer and at least two supplier computers, makes it possible for a buyer to establish an underlying base supply contract with multiple approved suppliers, to prepare a 'Request for Quotation' (RFQ) and issue this as a 'Bill of Materials' (BOM) to those approved suppliers, and then to conduct an online bidding event over a computer network between panel members who choose to validate the BOM. In this bidding process, ratings are applied automomatically to offers received from respective suppliers, in order to factor relevant supplier parameters into the tender process. When applied in a so-called 'reverse auction' process, the invention therefore affords dynamic comparison of offers as suppliers bid downwardly against one another to achieve the best result (lowest factored bid) for the buyer. The system and method described above has been tested extensively and shown to provide significant advantages over other approaches to online auctions.

In an alternative form, the invention involves an analogous 'factored pricing' process, allowing the buyer to apply factoring before issuing an RFQ to the prospective suppliers, or to allow a supplier to adjust specification criteria to effect 'self factoring' of an offer.

Under the rules of the method referred to above, the buyer sets a reserve price prior to a bidding event (eg prior to the release of the BOM), above which price he is not bound to accept an offer. Furthermore, the present rules include the following:

- The reserve is not disclosed to the suppliers until it is reached during the course of a bidding event.
- Once the BOM is released, but before it has been activated (ie transferred from the 'Pending' page to the 'Active' page), the buyer may change the reserve

price. This may occur, for example, once initial quotes have been received from suppliers as part of the BOM Validation phase.

- Once the reserve price is reached, the contract will be awarded to the bidder with the lowest factored bid at the close of the bidding event.
- If the reserve is not reached, the buyer has the right not to proceed with any contract; if however the buyer chooses to proceed with awarding a contract, he must do so with the bidder holding the lowest factored bid at the close of the bidding event. The rules surrounding the event must preclude any post-event negotiation. This is necessary to retain the credibility, transparency and fairness of the process.
- Once the reserve price is reached during the course of an online bidding event, this is indicated to all suppliers by an appropriate indicator or message on the Active screen.

A contract is therefore automatically awarded at the close of bidding, subject to the reserve price being reached. This is consistent with the aim of a negotiation being to 'reach an agreement'.

When the reserve price is *not* reached in the course of the event, the buyer has a choice. He may award the contract after bidding is completed, to the supplier with the lowest factored bid. This is a manual process and can be invoked any time after the close of the event, and the system includes an 'Award Contract' function for this purpose on the 'Active' and 'History' pages. This option is usually exercised when there is no possibility to delay the contract award for the goods or services being bid upon, and the current function allows only the lowest factored bidder to be awarded the contract, which is in keeping with preserving the fairness of the process and rewarding suppliers for participating in the bidding event.

Alternatively, where it is not necessary to complete the contract, the buyer is not obliged to award the contract to any supplier. In keeping with the requirement for no post-event (offline) negotiation, the contract is simply put aside and will be re-tendered – either by auction or other means – at a later date, or with a different lot structure.

With online auction events of this type, a further alternative exists. The buyer may be unhappy with the outcome and decide to abandon the auction result and the rules of the online system. Following this the buyer may decide to negotiate directly with one or more of the suppliers offline, which is clearly undesirable for a number of reasons. The transparency and integrity of the negotiation process are undermined, and the supplier

may become disenchanted with the process and refuse to participate in future events. This risks damaging the credibility and integrity of the system, and means that the audit trail and historical record of the outcome of the negotiation are likely to be lost. Clearly, in such offline negotiations it is likely that supplier or product differences can no longer be factored in accordance with the overall bidding event.

Summary of the invention

With the above problem in mind, the inventors of the present application have developed a new approach, which represents an improvement over current systems and methods. In accordance with the invention, there is provided a method of controlling an online auction between a controlling party and at least two competing participants, comprising the steps of:

(a) setting a reserve price for the auction;

(b) conducting the auction between the at least two competing parties;

(c) determining whether a predetermined time trigger has been reached, and suspending the auction if the reserve price is not reached at that time;

(d) determining whether the controlling party has selected to enter an optional reserve price negotiation phase, and resetting the reserve price for that reserve price negotiation phase;

(e) and, accordingly, extending the auction based on the reset reserve price.

The 'controlling party' is defined herein as the buyer, in the case of a reverse auction involving a buyer and multiple sellers, or the seller, in the case of a forward auction involving a seller and multiple buyers.

In this way, the reserve price revision may be optionally invoked at the discretion of the controlling party when the reserve price is not reached by the normal close of the bidding event. If an offer is received during the reserve price negotiation phase that satisfies the reset reserve price, then the offer may be accepted (and the contract awarded) at the close of that phase.

The predetermined time trigger may simply be the attainment of a point in time in accordance with a set duration of the auction, or may be fixed in accordance with dynamic rules operating during the auction. For example, it may be fixed in accordance with the completion of an extension period triggered by a prescribed event in the course of the auction, or the suspension of the auction may take place if no offers are received for a prescribed time period.

Preferably, the resetting of the reserve price involves setting a revised reserve price. In the case of a forward auction, this revised reserve is preferably a lower price, whilst in the case of a reverse auction, it is preferably a higher price.

Preferably, the step of extending the auction based on the reset reserve price involves repeating steps (b) to (d). In this way, the controlling party can optionally invoke a succession of reserve price negotiation phases, revising the reserve price set at each phase. Preferably, each reserve price negotiation phase is of a prescribed duration, such as 5 minutes.

In accordance with yet a further aspect of the invention, there is provided a system for controlling an online auction between a controlling party and at least two competing participants, comprising means for carrying out one or more of the methods defined above.

Preferably, the auction involves the award of a supply contract to a supplier selected from a panel of predetermined suppliers which each have a base supply contract with the buyer, and the computer network over which the online auction is carried out comprises at least one buyer computer, an administrator computer and at least two supplier computers, and the method includes the steps of: (i) establishing key parameters for a BOM to be submitted by the administrator computer to the at least two supplier computers (eg. price, quality, delivery and service); (ii) applying a weighting to each of the parameters; (iii) applying a rating for each of these parameters for each supplier of the panel of predetermined suppliers; (iv) calculating an overall rating for each supplier of the panel of predetermined suppliers; and (v) applying that overall rating to any offer received by the administrator computer from the supplier computer of that supplier in response to the release of a BOM to adjust that offer prior to comparison of that offer with any other offer.

The step of applying a rating for each supplier in step (iii) may be based at least partially upon past performance of that supplier for each parameter. The parameters are, for example, previous timeliness of delivery of materials, quality of delivered materials, price, etc. The step of applying a rating for each supplier in step (iii) may be based at least partially upon other parameters outside the control of that supplier for each parameter, such as forecast material demand, commodity price forecasts, exchange rate forecasts, industry trends, historical bidding data, etc.

The BOM may include a time period for submissions of offers by said suppliers, and this time period may be extendable to enable submission of an improved final offer from at least some of the supplier computers from which offer messages were received.

The suppliers able to submit offers during said extension period may be selected according to prescribed criteria (such as the suppliers with the 3 or 4 lowest offers), and the method may include the step of providing the supplier with the lowest offer at the expiry of the unextended time period an option to submit the very final offer of the bidding event.

Each supplier may be provided with a current bid to win (CBTW) in respect of the supply contract, the CBTW calculated by said administrator computer to dynamically indicate to a supplier the offer that that particular supplier must submit to compete with the best previous offer. The CBTW for supplier may be calculated in accordance with the formula:

$$CBTWx_m = FB_{n-1} - (MD / SFx)$$

where x indicates a particular supplier X; m indicates that particular supplier's bid number; n indicates the overall bid number (ie 1st bid:$n=1$; 2nd bid:$n=2$;etc); *FB* indicates a factored bid for said particular supplier; *MD* indicates a set minimum bid decrement; and *SF* is the supplier factor set in accordance with said overall supplier rating. *FB* may be calculated in accordance with the formula:

$$FB_n = SBx_n + (MD / SFx) - MD$$

where *SB* is a submitted bid.

Preferably, before commencement of a bidding event for the supply contract, opening offers are received by the administrator computer from said suppliers, and these opening offers are compared to establish a starting price for the bidding event. For each opening offer received from a supplier, the overall rating may be applied to the offer to adjust that offer prior to comparison with any other opening offer.

Preferably, the method includes the step of comparing a measure of the reset reserve price with bids previously received during the auction, to which bids said overall rating has been applied, before the reserve price negotiation phase can be entered. In the case of a reverse auction event, for example, the system is therefore configured such that a (factored) revised reserve price cannot be set that is greater than the lowest factored bid already received.

Detailed Description of the Invention

A non-limiting embodiment of the invention will now be described by way of example only.

A form of the system to which the invention may be applied is described in detail in copending application PCT/AU01/01110. This involves so-called 'factored bidding', which (in the context of a reverse auction) allows the buyer to set supply criteria for a particular subcategory of materials. The system, schematically illustrated in accompanying Figure 1, involves a computer network including at least one buyer computer, an administrator computer and at least two supplier computers. These components are linked via the Internet or any other appropriate network system. It is to be noted that the system does not have to be third party controlled, as it can be initialised, updated and controlled by the procurement specialist within a buyer organisation. The concept of factored bidding will be briefly described below.

Each material subcategory (panel) can have different supply criteria. For example Toyota might, for a category 'Camry' and subcategory 'Tyres' set supply criteria as price, quality, delivery, and service. Whereas, for Toshiba, manufacturing laptop computers, the category 'Satellite Pro' and subcategory 'LCD Display' might have supply criteria of warranty, quality and price.

Once the actual criteria are identified, the buyer numerically rates the importance of each of the identified criteria, eg from a scale of 1 to 10 (the scale itself is not important as long as the rating is representative of the importance of the criteria in an absolute and a relative sense). As a purely fictional scenario, Toyota might set: price – 9, quality – 7, delivery – 8 , and service – 6, out of a maximum score of 10 for each criteria established against Camry/Tyres. The buyer then considers how well each panel supplier for the specific subcategory is performing or should be rated (from historical interactions) against each of the identified criteria.

Toyota could have 3 suppliers that can all supply Camry tyres to the required specification ie Toyota has 3 approved Camry tyre suppliers that will form the panel for the Camry Tyres subcategory in the administrator computer. Toyota then creates an overall rating for each panel member. The factor and the ratings and criteria are visible to each supplier, which allows the latter to work with the buyer to improve their assigned factor.

Over time the administrator computer collects data on all the supply criteria. This allows the administrator computer to help buyers make decisions about how to rate a particular supplier. For example the administrator computer measures payment time, and delivery time automatically from the buyer's ERP system. This data is analysed and presented to the supplier as an input to the supplier rating process.

In the auction event, all submitted bids are factored in accordance with an appropriate algorithm, eg by adding a minimum decrement with the respective supplier factor applied. Given that there is a minimum bid decrement (to avoid immaterial bids) and that the supplier submitted bids are factored, it is difficult for suppliers to readily calculate their next bid in order to hold the current bid. For this reason, an additional information field is provided, labelled 'Current Bid To Win' (CBTW). This field is related directly to the supplier factor and effectively tells a supplier the maximum that they can enter as a submitted bid.

The premise of factored bidding is therefore that suppliers with higher ratings can bid higher amounts than those with lower ratings and still win the business. By factoring the minimum decrement and subtracting this from the last factored bid, the bid a supplier needs to submit to win the business can be calculated and displayed to the supplier.

In general, an online bidding event is run for a fixed period of time (such as thirty minutes). At the end of this time, as measured by the server clock, the lowest factored bid is accepted. The use of a fixed period of time contributes to the efficient price discovery mechanism of the process, and encourages bidders (suppliers) to enter their bids within this prescribed period (which is published in advance). By limiting the entire event to a reasonably short period, bidders are encouraged to actively view and participate in the event, rather than simply to enter a bid then logoff.

In certain situations, the bid submission may be affected by the participants' physical ability to respond. This effect can mean that the buyer may not receive the very best offer possible, because the event time may expire before a counter bid can be made.

For the above reasons, it is possible to include in certain online auctions the function of an automatic extension of the event duration, if a bid is received within a specified window at the close of the event (typically five minutes). The event is then extended by, say, an additional fifteen minutes. This time extension capability is particularly useful with high value, strategic materials where significant shifts in the bidding activity can occur in the final stages of an online event. The application can include an additional parameter to specify a maximum number of extension periods.

An alternative approach, referred to herein as the 'Best and Final Bid' function, applies a systematic approach, wherein suppliers who have submitted a bid during the course of the normal bidding event are given the opportunity to submit a 'best and final bid' (BAF) once the event has concluded, if certain determined criteria are met.

A reserve price is always set prior to commencement of a bidding event. In accordance with conventional bidding events, once the reserve price is reached, the contract is awarded to the bidder with the lowest factored bid at the close of the bidding event. If the reserve price is not reached, problems can arise if negotiations are taken 'offline', as outlined in the introductory portion of this description

The system therefore includes a functionality for reserve price negotiation (RPN™). This retains the credibility and transparency of the negotiation process and allows the buyer to keep all suppliers at the virtual negotiation table, thus ensuring that the buyer has every opportunity to award the business to the best value supplier, by preserving the relative differences via the factoring.

RPN Function Concept

The Reserve Price Negotiation (RPN) function is an option that may be invoked at the discretion of the buyer when the reserve price is not reached by the close of an online bidding event. The close of the event includes any bid extension periods that may result from the rules of the event.

The buyer may adjust the reserve price iteratively, according to a minimum increment or decrement, and allow suppliers to place additional bids. The process flow for the function is illustrated schematically in Figure 2.

The 'raw' (unfactored) reserve price must be converted into a factored reserve price, which is the minimum of the factored reserve price calculated for each supplier, or simply the factored reserve price based on the supplier with the highest bidding factor. This has the effect of ensuring that when the best performing supplier reaches the unfactored reserve price, then all the other suppliers will also be at or below that reserve price.

Buyer Functions

The RPN function may operate over a set number of periods, similar to the concept of a time extension function, each period being a predetermined length (eg five minutes). The parameters for this ('RPN Period: <nnn> minutes') are specified in the auction design on the 'Market Rules' page, where rules such as 'BOM Bid End Time' and 'Minimum Bid Increment' are set for the auction event. Optionally, a time extension function can be added to the RPN period with the same logic as current functionality. Effectively the RPN function can therefore be seen as re-running the closing part of the bidding event, but with an amended reserve price parameter.

The buyer may increase the reserve price, by an amount greater than or equal to the minimum increment, and then allow all bidders to place bids with their respective 'current bid to win' (CBTW) figures re-calculated based on the basic reserve price. The CBTW is a (factored) figure provided to competing suppliers calculated to dynamically indicate to respective suppliers the particular offer that the respective suppliers must submit to compete with the best previous offer.

Logic Flow

The following indicates the broad logic flow of the system.

Auction is running without reserve price being reached

Status: **NEGOTIATION IN PROGRESS**
RESERVE PRICE NOT REACHED

Auction ends with reserve price not reached.
Status: **NEGOTIATION PENDING**
RESERVE PRICE NOT REACHED

This alerts suppliers that an agreement has not been reached and the contract has not been finalised.

The buyer is then presented with the following options to invoke the RPN function manually.

The choices are:

(a) Proceed with reserve price negotiation;
Status: **RESERVE PRICE NEGOTIATION**
RESERVE PRICE NOT REACHED

(b) Cancel. Contract is cancelled and no-one is awarded the business. This end state results in a draft BOM being created on the 'Pending' page of the application, and the live BOM being transferred to the 'History' page. If the BOM is not to be tendered again at a later date, the buyer needs to delete it from the 'Pending' page.
Status: **NEGOTIATION CANCELLED**
RESERVE PRICE NOT REACHED

(c) Defer. Contract award is deferred and may be subsequently awarded via the 'Award Contract' function. After the day of the event, the BOM is transferred to the 'Pending' page, rather than the History page. A draft BOM is NOT created, since an end state has not yet been reached. The action available from the 'Pending'

page is 'Close Event', the actions being associated with this being 'Cancel' or 'Award', to reach an acceptable end state. Once this is done, the BOM is transferred to the 'History' page, with the appropriate status recorded.

Status: **CONTRACT AWARD DEFERRED**

RESERVE PRICE NOT REACHED

(d) Award Contract

Status: **CONTRACT AWARDED**

RESERVE PRICE NOT REACHED

If the buyer chooses to select the RPN option, he can then change the reserve price. This is usually upwards, but it can also be downwards, at least for the first period. See below for buyer input fields:

The RPN period is then started with the CBTW of each supplier recalculated and displayed to the respective suppliers.

If there is no response within the RPN period, the buyer has the option of changing the reserve price and entering into another RPN round. Under this scenario, the buyer is presented with the same options as (3) above.

If a supplier responds with a bid during the RPN period, then the remaining set time for the RPN is effectively cancelled (eg 1 minute into a 5 minute extension period);

Status: **RESERVE PRICE NEGOTIATION**

RESERVE PRICE REACHED

The supplier response triggers a counter bid period of, say, 5 minutes. Since one supplier now holds the bid at the reserve price, if there are no further bids, that supplier will be awarded the contract. If a competing supplier lodges a counter bid, then the event will proceed as if it were a conventional event in its final stages (ie, if a bid is lodged within the time extension activation period, then the normal time extension logic applies). A parameter is included in the auction design on the 'Market Rules' page as: 'Counter Bid Period: <nnn> minutes'

The first RPN period can be at or above (or below) the original reserve price. This gives the bidders a final opportunity to bid for the buyer's business at his initial reserve. Subsequent RPN periods must have a reserve price that is at least one minimum increment above the previous reserve price. In just the same way that spurious or non-material bids from suppliers are not desirable, a similar discipline is enforced on buyers.

The 'Buyer Active' screen includes function similar to the 'Supplier Active' screen, as the buyer can submit a revised reserve price. The confirmation dialog indicates the

basic reserve price and the factored reserve price, in the same manner that supplier bids are confirmed:

Current Reserve Price	**Factored Reserve Price**
999, 999,999.99 <Cur>	999,999,999.00 <Cur>
Next Minimum Reserve Price	
999,999,999.99 <Cur>	
Reserve Price	
[ ] <Cur>	<Submit>

Similar logic and informational display as that used in respect of bid extension information is necessary during the RPN period (ie RPN Period <nn> of <nn>) displayed above the graph on the 'Active' page.

As mentioned above, since the online bidding event uses 'factored prices', the test to determine whether the reserve price has been reached is based on a 'factored reserve price' (FRP). The factored reserve price is calculated in a similar manner as the factored bids (FRP = RP + (MD/SF) – MD). Since the supplier factor (SF) is likely to be different – based on relative performance – for each supplier, the calculated FRP will also be different for each supplier. A supplier with a lower rating than another, will have a higher FRP. For this reason, in order to ensure that the 'RESERVE PRICE REACHED' indicator is not activated until the buyer-determined raw reserve price (RP) has been reached by *all* suppliers, the FRP for each supplier is first calculated, then the lowest of these is then taken as the FRP that is checked against each bid. The same result is achieved by calculating the FRP with the formula above for the best performing supplier (ie the supplier with the highest SF).

A rule is built into the application to ensure that the new reserve price does not result in a factored reserve price that is greater than the lowest factored bid received during the auction:

Factored RP ≤ Lowest Factored Bid (LFB)

Where the calculated starting price has been overridden, a rule is built into the application to ensure that the new reserve price does not result in a factored reserve price that is greater than the lowest factored quote. It is to be noted that this logic would allow

the initial starting price – which is factored – to be exceeded. This case needs to be checked for events in which the starting price has been overridden and no bids lodged during the event.

Factored RP ≤ Lowest Factored Quote (LFQ)

If the buyer enters a reserve price such that the factored reserve price is equal to the LFB or LFQ, then a warning message is displayed with the option to 'Proceed' or 'Cancel' the input. If the buyer chooses to proceed with this option, the reserve price is set exactly equal to the LFB or LFQ (as the case applies). This has the same effect as accepting a valid bid from the relevant supplier.

The buyer can then keep increasing the reserve price (by minimum increments) until a supplier enters a bid. The system can include a function analogous to the CBTW for the reserve price displayed to the buyer (Next Minimum Reserve Price, NMRP).

The RPN period is clearly indicated above the event display graph, eg via a status indicator "RESERVE PRICE NEGOTIATION".

The application of the RPN function into a bidding event is set via an optional flag associated with setting up the event on the current 'Market Rules' screen. The information necessary for the setup of this function on the 'Market Rules' page is as follows, and it is to be noted that in general these are very similar, and use similar field semantics, to the options for setting up time extension parameters:

Screen sub-section title: **RESERVE PRICE NEGOTIATION**

Reserve Price Negotiation:
Options: Supported / Not Supported

RPN Period: <nnn> **Minutes**

Max. No. of Periods: <nnn>

Counter Bid Period: <nnn> **Minutes**

Minimum RP Increment: (Note that this is not disclosed to suppliers when they view the 'Market Rules' page)

Currency: (this defaults to the same currency as for this event, which means that this is a 'display only' field).

The 'Bid History' for the buyer retains a record of the changes to the reserve price. A column appears on this page showing the reserve price, and also recording the initial

reserve price applied during BOM creation, as well as any changes prior to the event in overriding the reserve price.

A 'View Only' logon role is also available for buyers, as the buyer now has a much more interactive 'Active' page.

Supplier Functions

When the RPN function is invoked, the suppliers remain on the 'active' screen. Since the active screen will still be refreshing itself according to the prescribed refresh frequency, the suppliers take note of the negotiation status, to understand what course of action the buyer is intending to take. Initially, before the reserve price is reached, each supplier sees a CBTW based on the reserve price. The traffic light status is reset to 'red' for all suppliers once the RPN function is activated. In addition, the 'Submitted Bid' and 'Factored Bid' fields are cleared on all supplier 'Active' pages to indicate clearly that they do not hold the bid.

All Suppliers who have validated the BOM are able to participate in the RPN.

The first supplier to meet the reserve price – by bidding at or below their CBTW figure – will hold the winning bid at that point. The other suppliers may submit counter bids in relation to the bid, based on the normal rules associated with the bidding event.

A clear message or status indicator appears on the screen to indicate that the negotiation has been concluded (ie that the event is completed and that a contract has been awarded).

This functionality also allows suppliers to change their values of the negotiable factors during the reserve price negotiation period. For example, a supplier may change his payment terms from 60 to 90 days which will, other things remaining equal, increase the CBTW for that supplier.

The invention therefore provides an effective negotiation opportunity, with the buyer entering into the decision making process, whilst maintaining the process within the set rules of the system, ensuring that offers are still compared in accordance with the appropriate supplier ratings, and maintaining the audit trail on the bidding process. The invention has particular application with respect to factored bidding in reverse auction scenarios, but the reserve price negotiation methodology can be used in any type of online auction process.

The present invention may be applied to the procurement process for any goods or services which are sufficiently valuable (to justify use of the process), specifiable (so that competing suppliers are able to interpret the requirements, and to afford a consumer basis for comparison), and contestable (ie more than one supplier has the capability to fulfil the request). Although the examples given in this description relate to 'direct' material, used as direct inputs to a manufacturing process, the invention is equally applicable to 'indirect' inputs (travel, freight, consumables, etc.).

The word 'comprising' and forms of the word 'comprising' as used in this description does not limit the invention claimed to exclude any variants or additions.

Modifications and improvements to the invention will be readily apparent to those skilled in the art. Such modifications and improvements are intended to be within the scope of this invention.

Name of Applicant: OzB2B Pty Ltd 7 March 2002

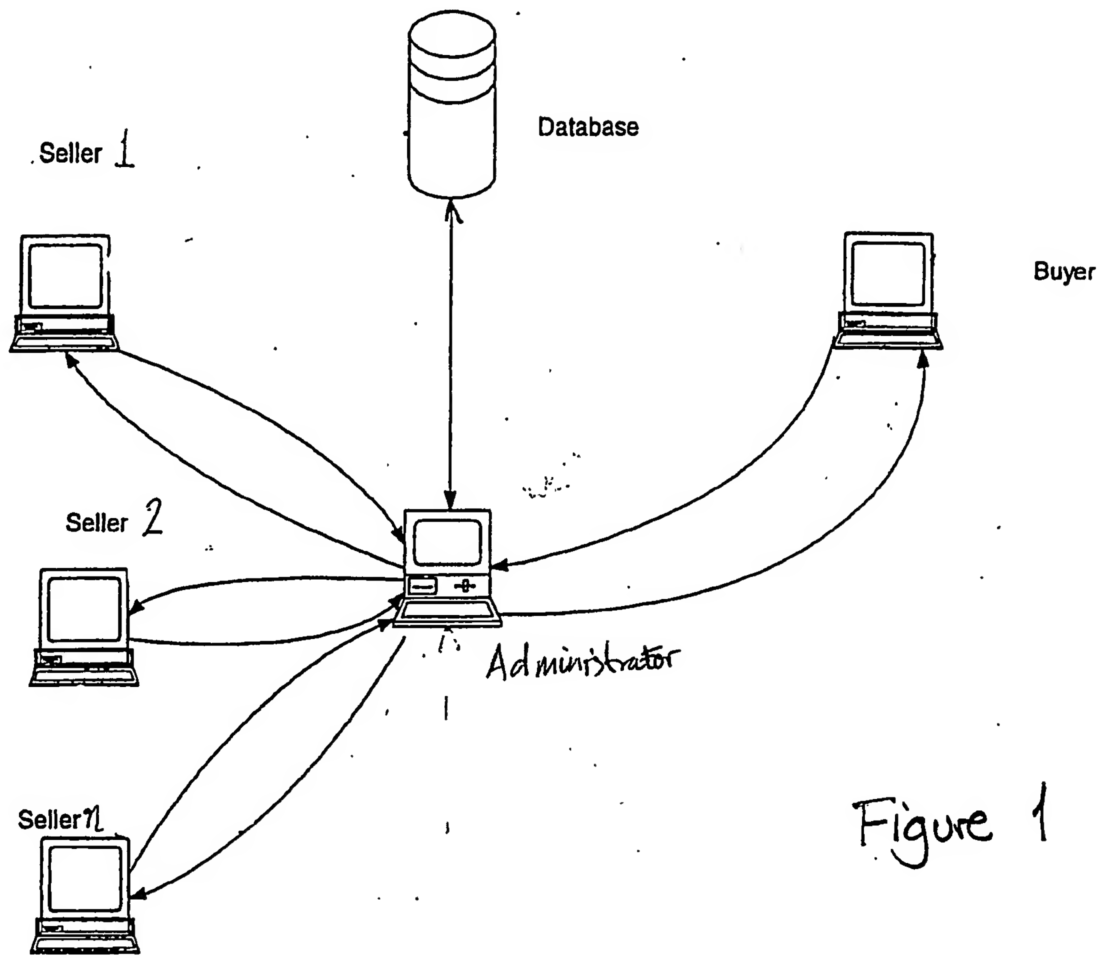

Figure 1

Figure 2 – RPN™ Process Flow